

WHAT IS CLAIMED IS:

1. A magnetron high frequency device comprises:

a filtering inductor coupled to a positive end of a direct current power supply and having a first end and a second end;

a central tap transformer having a central tap end, a first end and a second end, said central tap end being connected to said second end of said filtering inductor;

a filtering capacitor having a first end connected to said first end of said central tap transformer and a second end connected to a negative end of said direct current power supply;

a first switch which is connected in series to said second end of said central tap transformer and connected to said negative end of said direct current power supply;

an in-series circuit having a second switch and a second capacitor and coupled to said central tap transformer;

a first capacitor connected to said central tap transformer;

a rectifying device coupled to a secondary winding of said central tap transformer; and

a magnetron coupled to said rectifying device,
wherein, said first capacitor, said second capacitor and said central tap transformer forms a resonant circuit.

2. The magnetron high frequency device according to claim 1, wherein said first capacitor is connected in parallel with said central tap transformer.

3. The magnetron high frequency device according to claim 2, wherein said first capacitor is connected in parallel with said first end and said second end of said central tap transformer.
4. The magnetron high frequency device according to claim 1, wherein said first capacitor is connected in-series with said central tap transformer and is connected in parallel with said first switch.
5. The magnetron high frequency device according to claim 4, wherein said first capacitor is connected in series with said second end of said central tap transformer.
6. The magnetron high frequency device according to claim 1, wherein said in-series circuit is connected in series with said central tap transformer.
7. The magnetron high frequency device according to claim 6, wherein said in-series circuit is connected in parallel with said first end and said second end of said central tap transformer.
8. The magnetron high frequency device according to claim 1, wherein said in-series circuit is connected in series with said central tap transformer.
9. The magnetron high frequency device according to claim 8, wherein said in-series circuit is connected in series with said second end of said central tap transformer.
10. The magnetron high frequency device according to claim 1, wherein said rectifying device is selected from the group consisted of a full wave voltage doubler rectification, a half wave voltage doubler rectification, a full wave rectification, and a full bridge rectification.
11. The magnetron high frequency device according to claim 1, wherein said transformer is a transformer with leakage inductance.

12. The magnetron high frequency device according to claim 1, wherein said first capacitor is a body capacitance of said first switch.